

Innovative Housing Grants Program

RETROFIT FIREPLACE DAMPER

M. Hatzinikolas, P. Eng., H. Morstead

The retrofit fireplace damper (trade name MI - CAP C1980 Fireplace Damper) is a new invention that has the potential to improve the efficiency of fireplaces and other heating devices utilizing chimneys. The MI - CAP when installed will:

- 1) eliminate cold air draft;
- 2) eliminate snow and rain penetration; and
- 3) limit heat loss.

Air Movement

Most site built masonry fireplaces have poorly fitting dampers and this is often cited as a source of uncontrolled air leakage.

There are three possible conditions of air movement through a chimney:

- 1) flow of heated air from inside the building to the outside resulting in energy loss;

- 2) flow of cold air down the chimney and into the enclosed living area;

- 3) no movement (neutral equilibrium), which often causes cooling of the chimney and surrounding materials (bricks, blocks, etc.) which in turn generates convection currents in the room containing the fireplace.

Mi-Cap Design and Operation

The device illustrated consists of a removable cap, corner supports, angle frame steel flap, non-combustible cable, cross bar and accessories. The whole assembly is designed to be force fit into a standard clay flue liner from the top of the chimney. The user can operate the device with cables from the fireplace. The damper is closed by pulling on the "close" cable and will remain closed by attaching a small weight to the cable. The damper will open by removing the weight.

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If the plate becomes frozen shut or jammed, it can be forced open by pulling on the "open" cable.

Testing Mi-Cap

MI-CAP has been tested by the Alberta Research Council and in a number of homes in Edmonton during the coldest part of the winter season. The researchers

of the Council noted, "If air infiltration is occurring through an existing chimney this device should virtually eliminate this air flow". The residents of the test homes also reported elimination of drafts and increased comfort.

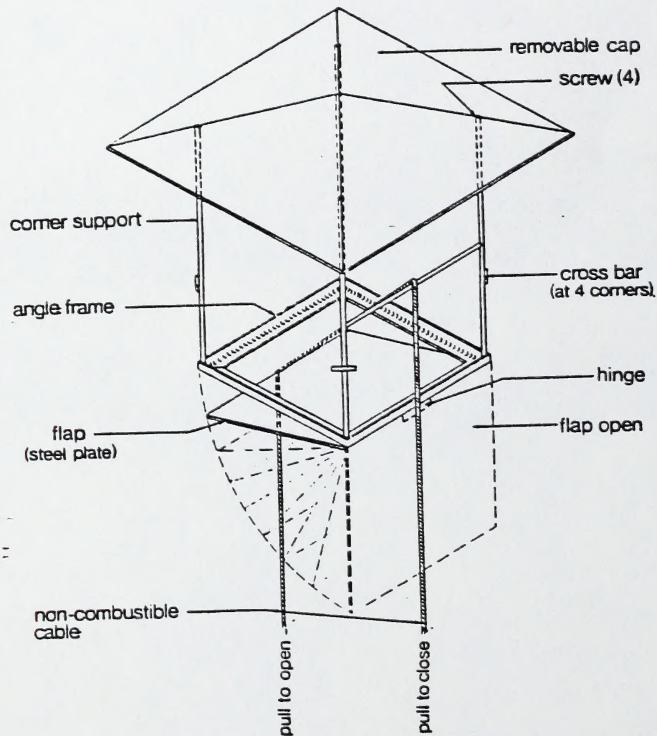


Fig. 1. Retrofit Fireplace Damper